## PCTEST ENGINEERING LABORATORY, INC.



6660-B Dobbin Road, Columbia, MD 21045 USA Tel. 410.290.6652 / Fax 410.290.6554 http://www.pctestlab.com



# CERTIFICATE OF COMPLIANCE FCC Part 22 & 24 Certification

Applicant Name: LG Electronics USA 1000 Sylvan Avenue Englewood Cliffs, NJ 07632 United States Date of Testing:
October 21-22, 2008
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Test Report Serial No.:
0810171523.BEJ

FCC ID: BEJLG410G

APPLICANT: LG ELECTRONICS USA

Application Type: Certification

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part(s): §2; §22(H), §24(E)

**EUT Type:** 850/1900 GSM/GPRS Phone

Model(s): LG410G

**Tx Frequency Range:** 824.20 - 848.80MHz (Cell. GSM) / 1850.20 - 1909.80MHz (PCS GSM)

Max. RF Output Power: 0.838 W ERP Cell. GSM (29.23 dBm) / 1.995 W EIRP PCS GSM (33 dBm)

Emission Designator(s): 248KGXW (Cellular GSM), 243KGXW (PCS GSM)

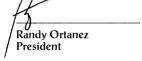
**Test Device Serial No.:** identical prototype [S/N: N/A]

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Grant Conditions: Power output listed is ERP for Part 22 and EIRP for Part 24.

PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.





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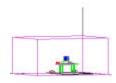


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## MEASUREMENT REPORT FCC Part 22 & 24



### §2.1033 General Information

APPLICANT: LG Electronics USA
APPLICANT ADDRESS: 1000 Sylvan Avenue

Englewood Cliffs, NJ 07632

**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC. **TEST SITE ADDRESS:** 6660-B Dobbin Road, Columbia, MD 21045 USA

**FCC RULE PART(S):** §2; §22(H), §24(E)

**BASE MODEL**: LG410G **FCC ID**: BEJLG410G

FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)

EMISSION DESIGNATOR(S): 248KGXW (Cellular GSM), 243KGXW (PCS GSM)

MODE: GSM

FREQUENCY TOLERANCE: ±0.00025 % (2.5 ppm)

**Test Device Serial No.:** N/A □ Production □ Pre-Production □ Engineering

**DATE(S) OF TEST:** October 21-22, 2008 **TEST REPORT S/N:** 0810171523.BEJ

### **Test Facility / Accreditations**

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21045, U.S.A.

PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (IC-2451).



- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (IC-2451) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.



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### 1.0 INTRODUCTION

## 1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

### 1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity are, the Baltimore-Washington Internt'l (BWI) airport, the city of Baltimore and the Washington, DC area. (see Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 27, 2006 and Industry Canada.

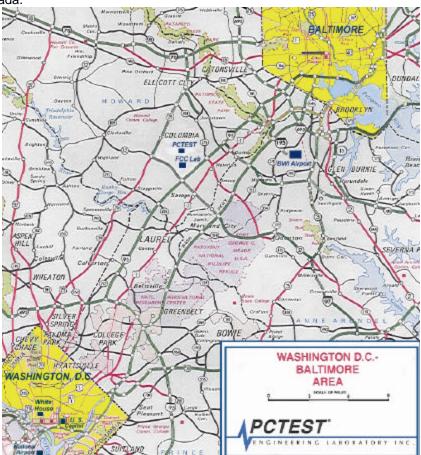


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

•	•	•	• /			
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© COCCEPTED : :	DEVICES.					

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### PRODUCT INFORMATION

#### 2.1 **Equipment Description**

The Equipment Under Test (EUT) is the LG 850/1900 GSM/GPRS Phone FCC ID: BEJLG410G. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
LG / Model: LG410G	BEJLG410G	850/1900 GSM/GPRS Phone

Table 2-1. EUT Equipment Description

#### 2.2 **EMI Suppression Device(s)/Modifications**

No EMI suppression device(s) were added and no modifications were made during testing.

#### 2.3 **Labeling Requirements**

### Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase.

### Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

Please see attachment for FCC ID label and label location.

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### DESCRIPTION OF TESTS

#### 3.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3meter test range (see Figure 3-1). The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. A halfwave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

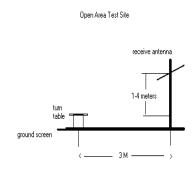


Figure 3-1. Diagram of 3-meter outdoor test range

Deviation from Measurement Procedure.....None

#### 3.2 Occupied Bandwidth Emission Limits §2.1049, 22.917(a), 24.238(a)

- a. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB.
- b. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
- c. When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.
- d. The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

#### 3.3 Cellular - Base Frequency Blocks



BLOCK 1: 869 - 880 MHz (A\* Low + A) BLOCK 3: 890 - 891.5 MHz (A\* High)

BLOCK 2: 880 - 890 MHz (B) BLOCK 4: 891.5 - 894 MHz (B\*)

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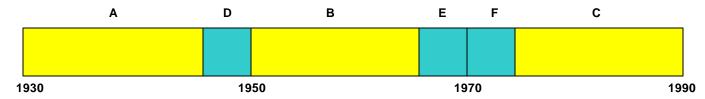
### 3.4 Cellular - Mobile Frequency Blocks



BLOCK 1: 824 – 835 MHz (A\* Low + A) BLOCK 3: 845 – 846.5 MHz (A\* High)

BLOCK 2: 835 – 845 MHz (B) BLOCK 4: 846.5 – 849 MHz (B\*)

### 3.5 PCS - Base Frequency Blocks

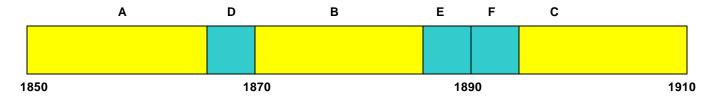


BLOCK 1: 1930 – 1945 MHz (A) BLOCK 4: 1965 – 1970 MHz (E)

BLOCK 2: 1945 – 1950 MHz (D) BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 3: 1950 – 1965 MHz (B) BLOCK 6: 1975 – 1990 MHz (C)

### 3.6 PCS - Mobile Frequency Blocks



BLOCK 1: 1850 – 1865 MHz (A) BLOCK 4: 1885 – 1890 MHz (E)

BLOCK 2: 1865 – 1870 MHz (D) BLOCK 5: 1890 – 1895 MHz (F)

BLOCK 3: 1870 – 1885 MHz (B) BLOCK 6: 1895 – 1910 MHz (C)

# 3.7 Spurious and Harmonic Emissions at Antenna Terminal §2.1051, 22.917(a), 24.238(a)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic.

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#### 3.8 Radiated Spurious and Harmonic Emissions §2.1053, 22.917(a), 24.238(a)

Spurious and harmonic radiated emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration. This device was tested in all configurations and the highest power is reported in GSM voice mode while using a Power Control Level of "5" in the Cellular band and "0" in the PCS band.

#### 3.9 Peak-Average Ratio §24.232(d)

A peak to average ratio measurement is performed at the conducted port of the EUT. For CDMA and WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth.

#### 3.10 Frequency Stability / Temperature Variation §2.1055, 22.355, 24.235

The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

### Time Period and Procedure:

- 1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 2. The equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

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# 4.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

- 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A N/A N-165 (30MHz - 1000MHz) RG55 Caax Cable N/A	Manufacturer	Model	Description	Calibration Date	Cal Interval	Calibration Due	Serial No.
- No.166 (1000-28500MHz) Microwave RF Cable N/A N/A N/A N/A Aglient 11713A Attenuation Switch Driver 12713/07 Annual 12713/08 3439A02845 Aglient 11713A Attenuation Switch Driver 12713/07 Annual 12713/08 3439A02845 Aglient 84498 (1-26.5GHz) Pre-Amplifier 12713/07 Annual 12712/08 3008A00985 Aglient 8495A (0-70dB) DC-4GHz Attenuator N/A N/A N/A N/A Aglient 8565D	-	263-10dB	(DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
No.167	-	No.165	(30MHz - 1000MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent         11713A         Attenuation/Switch Driver         12/13/07         Annual         12/13/08         3439A02645           Agilent         8449B         (1-26.5GHz) Pre-Ampiller         12/13/07         Annual         12/12/08         3008A00985           Agilent         8498A         (0-708) DC-4GHz Attenuator         N/A         N/A         N/A         N/A           Agilent         85650A         Quasi-Peak Adapter         03/13/08         Annual         03/13/09         2043A00301           Agilent         8566B         (100Hz-22GHz) Spectrum Analyzer         12/13/07         Annual         12/13/08         3638A08713           Agilent         8566B         Opt. 462 Impulse Bandwidth         12/13/07         Annual         12/13/08         3638A08713           Agilent         8567         Qpt. 462 Impulse Bandwidth         12/13/07         Annual         10/10/09         3144A02458           Agilent         8584D         Qpt. 462 Impulse Bandwidth         12/13/07         Annual         10/10/09         3144A02458           Agilent         E5450         Mireless Communications Test Set         08/10/09         Annual         10/10/09         3613A00315           Agilent         E5515C         Wireless Communications Test Set         06/08/07	=	No.166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
Agilent         8449B         (1-26.5GHz) Pre-Ampilifier         12/13/07         Annual         12/12/08         3008A00985           Agilent         8495A         (0-708B) DC-4GHz Attenutor         N/A         1/27009         20343003         20343003         204300301         20450000         20471000	-	No.167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent         8495A         (0-70dB) DC-4GHz Attenuator         N/A         N/A         N/A         N/A           Agilent         85650A         Quasi-Peak Adapter         03/13/08         Annual         03/13/08         2043A00301           Agilent         8566B         (100Hz-22GHz) Spectrum Analyzer         12/13/07         Annual         12/13/08         338A8A8713           Agilent         8566B         Opt. 462 Impulse Bandwidth         12/13/07         Annual         12/12/08         3701A22204           Agilent         8564B         Opt. 462 Impulse Bandwidth         12/13/07         Annual         10/19/09         3144A02458           Agilent         864BD         (9kHz-1/8GHz) Signal Generator         10/11/07         Biennial         10/11/07         313008         Annual         03/13/09         1344A02458           Agilent         E4407B         ESA Spectrum Analyzer         03/13/08         Annual         01/14/09         US42510244           Agilent         E5515C         Wireless Communications Test Set         060807         Biennial         06/08/09         G846110872           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         G841450275           Agilent	Agilent	11713A	,	12/13/07	Annual	12/13/08	3439A02645
Agilent         85650A         Quasi-Peak Adapter         0.3/13/08         Annual         0.3/13/09         2043A00301           Agilent         8566B         (100Hz-22GHz) Spectrum Analyzer         1.2/13/07         Annual         1.2/13/08         3638A08713           Agilent         8566B         Opt. 462 Impulse Bandwidth         1.2/13/07         Annual         1.2/12/08         3701A22204           Agilent         8648D         (9kHz-18GHz) Spectrum Analyzer         0.919/08         Annual         0.03/19/09         3144A02458           Agilent         E4407B         ESA Spectrum Analyzer         0.913/08         Annual         0.03/19/09         3144A02458           Agilent         E4407B         ESA Spectrum Analyzer         0.912/408         Annual         0.03/19/09         3144A02458           Agilent         E5515C         Wireless Communications Test Set         0.608/07         Biennial         0.1074/09         US42510244           Agilent         E5515C         Wireless Communications Test Set         0.608/07         Biennial         0.6708/09         GB46110872           Agilent         E5515C         Wireless Communications Test Set         0.608/07         Biennial         0.910/10/10         Biennial         0.910/10/10         1.010/10/10         1.010/10/10<	Agilent	8449B	(1-26.5GHz) Pre-Amplifier	12/13/07	Annual	12/12/08	3008A00985
Agilent         8566B         (100Hz~22GHz) Spectrum Analyzer         12/13/07         Annual         12/13/08         3638A08713           Agilent         8566B         Opt. 462 Impulse Bandwidth         12/13/07         Annual         12/12/08         3701422204           Agilent         8591A         (9kHz-18GHz) Signal Generator         08/19/09         Annual         09419/09         3114A02458           Agilent         E4407B         ESA Spectrum Analyzer         03/13/08         Annual         03/13/09         US39210313           Agilent         E4407B         ESA Spectrum Analyzer         01/24/08         Annual         03/13/09         US39210313           Agilent         E4448A         (3Hz-50GHz) Spectrum Analyzer         01/24/08         Annual         01/124/09         US42510244           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Blennial         06/08/09         GB46310798           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Blennial         04/10/10         GB41450275           Agilent         E6515C         Wireless Communications Test Set         06/08/07         Blennial         04/10/10         GB41450275           Agilent         E82515C         Virele	Agilent	8495A	(0-70dB) DC-4GHz Attenuator	N/A		N/A	N/A
Agilent         8566B         Opt. 462 Impulse Bandwidth         12/13/07         Annual         12/12/08         3701A22204           Agilent         8591A         (9kHz-18GHz) Spectrum Analyzer         08/19/08         Annual         08/19/09         3144A02458           Agilent         8648D         (9kHz-4GHz) Signal Generator         10/11/07         Biennial         10/10/109         3613A00315           Agilent         E4407B         ESA Spectrum Analyzer         03/13/08         Annual         03/13/09         US39210313           Agilent         E4448A         (3Hz-50GHz) Spectrum Analyzer         01/24/08         Annual         01/24/09         US42510244           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46110872           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB4110872           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB4110872           Agilent         E5257D         (250kHz-20GHz) Signal Generator         03/08/07         Biennial         09/10/10         GB41450275           Agilent         E8257D         <	Agilent	85650A	Quasi-Peak Adapter	03/13/08	Annual	03/13/09	2043A00301
Agilent         8591A         (9kHz-1.8GHz) Spectrum Analyzer         08/19/08         Annual         08/19/09         3144A02458           Agilent         8648D         (9kHz-4.GHz) Signal Generator         10/11/07         Blennial         10/11/09         3613A00315           Agilent         E4407B         ESA Spectrum Analyzer         03/13/08         Annual         03/13/09         US33210313           Agilent         E4448A         (3Hz-50GHz) Spectrum Analyzer         01/12/408         Annual         01/12/409         US432510244           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46110872           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB441450275           Agilent         E8257D         (250kHz-20GHz) Signal Generator         03/08/07         Biennial         09/10/10         GB41450275           Agilent         E8257D         (250kHz-20GHz) Signal Generator         03/08/07         Biennial         03/08/09         MY45470140           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         147           Compliance Design         Roberts	Agilent	8566B	(100Hz–22GHz) Spectrum Analyzer	12/13/07	Annual	12/13/08	3638A08713
Agilent         8648D         (9kHz-4GHz) Signal Generator         10/11/07         Biennial         10/10/09         3613A00315           Agilent         E4407B         ESA Spectrum Analyzer         03/13/08         Annual         03/13/09         US39210313           Agilent         E4448A         (3Hz-5GHz) Spectrum Analyzer         01/24/08         Annual         03/13/09         US39210313           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46310798           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46310798           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         11/08/09         147           Compliance Design         Rob	Agilent	8566B	Opt. 462 Impulse Bandwidth	12/13/07	Annual	12/12/08	3701A22204
Agilent         E4407B         ESA Spectrum Analyzer         03/13/08         Annual         03/13/09         US39210313           Agilent         E4448A         (3Hz-50GHz) Spectrum Analyzer         01/24/08         Annual         01/24/09         US42510244           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46110872           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         09/10/10         GB4810798           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         03/08/09         MY45470194           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         147           Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Biennial         10/3/09         9704-5182           Emco         31215         Horn Antenna (1-1	Agilent	8591A	(9kHz-1.8GHz) Spectrum Analyzer	08/19/08	Annual	08/19/09	3144A02458
Agilent         E4407B         ESA Spectrum Analyzer         03/13/08         Annual         03/13/09         US39210313           Agilent         E4448A         (3Hz-50GHz) Spectrum Analyzer         01/24/08         Annual         01/24/09         US42510244           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46110872           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         09/10/10         GB4810798           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         03/08/09         MY45470194           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         147           Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Biennial         10/3/09         9704-5182           Emco         31215         Horn Antenna (1-1	Agilent	8648D	(9kHz-4GHz) Signal Generator	10/11/07	Biennial	10/10/09	3613A00315
Agilent         E4448A         (3Hz-50GHz) Spectrum Analyzer         01/24/08         Annual         01/24/09         US42510244           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46110872           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         09/10/10         GB46310798           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E5257D         (250KHz-20GHz) Signal Generator         03/08/07         Biennial         09/10/10         GB41450275           Agilent         E8257D         (250KHz-20GHz) Signal Generator         03/08/07         Biennial         11/08/09         146           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         147           Emco         3115         Horn Antenna (1-18GHz)         9/24/07         Biennial         11/08/09         9704-5182           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         11/22/09         00023951           Espec         ESX-2CA         Environmental Chamber		E4407B	, ,		Annual		
Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46110872           Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46310798           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E8257D         (250kHz-20GHz) Signal Generator         03/08/07         Biennial         03/08/09         MY45470194           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         146           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         147           Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Biennial         11/08/09         9704-5182           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         10/3/09         9205-3874           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         11/22/09         00023951           Espec         ESX-2CA         Environmental Chamber         3/12/08							
Agilent         E5515C         Wireless Communications Test Set         06/08/07         Biennial         06/08/09         GB46310798           Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E8257D         (250kHz-20GHz) Signal Generator         0308/07         Biennial         03/08/09         MY45470194           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         147           Emco         3115         Horn Antenna (1-18GHz)         9/24/07         Biennial         10/3/09         9704-5182           Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Biennial         10/3/09         9205-3874           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         10/3/09         9205-3874           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         10/3/09         9205-3874           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         1/22/09         00023951           Espec         ESX-2CA         Environmental Chamber         3/12/08         Annual			, , , , , , , , , , , , , , , , , , ,				
Agilent         E5515C         Wireless Communications Test Set         09/10/08         Biennial         09/10/10         GB41450275           Agilent         E8257D         (250kHz-20GHz) Signal Generator         03/08/07         Biennial         03/08/09         MY45470194           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         146           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         147           Emco         3115         Horn Antenna (1-18GHz)         9/24/07         Biennial         10/3/09         9704-5182           Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Biennial         10/3/09         9704-5182           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         10/3/09         9704-5182           Espec         ESX-2CA         Environmental Chamber         3/12/08         Annual         3/18/09         017620           Gigatronics         80701A         (0.05-18GHz) Power Sensor         8/18/08         Annual         8/18/09         1833460           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual					Biennial		
Agilent         E8257D         (250kHz-20GHz) Signal Generator         03/08/07         Biennial         03/08/09         MY45470194           Compliance Design         Roberts         Dipole Set         11/09/07         Blennial         11/08/09         146           Compliance Design         Roberts         Dipole Set         11/09/07         Blennial         11/08/09         147           Emco         3115         Horn Antenna (1-18GHz)         9/24/07         Blennial         10/3/09         9205-3874           Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Blennial         10/3/09         9205-3874           Emco         3121C-DB4         Dipole Antenna         1/23/07         Blennial         1/22/09         90023951           Espec         ESX-2CA         Environmental Chamber         3/12/08         Annual         3/12/09         017620           Gigatronics         8671A         Universal Power Meter         8/18/08         Annual         8/18/09         1833460           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1835299           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09							GB41450275
Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         146           Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         147           Emco         3115         Horn Antenna (1-18GHz)         9/24/07         Biennial         19/23/09         9704-5182           Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Biennial         10/3/09         9205-3874           Emco         3121-C-DB4         Dipole Antenna         1/23/07         Biennial         11/22/09         00023951           Espec         ESX-2CA         Environmental Chamber         3/12/08         Annual         3/12/09         017620           Gigatronics         80701A         (0.05-18GHz) Power Sensor         8/18/08         Annual         8/18/09         1833460           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1835299           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         8650319           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         13044000 <td></td> <td></td> <td></td> <td>03/08/07</td> <td></td> <td></td> <td></td>				03/08/07			
Compliance Design         Roberts         Dipole Set         11/09/07         Biennial         11/08/09         147           Emco         3115         Horn Antenna (1-18GHz)         9/24/07         Biennial         9/23/09         9704-5182           Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Biennial         10/3/09         9205-3874           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         11/22/09         00023951           Espec         ESX-2CA         Environmental Chamber         3/12/08         Annual         3/12/09         017620           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1833460           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1835299           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         8650319           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         N/A			, ,				
Emco         3115         Horn Antenna (1-18GHz)         9/24/07         Biennial         9/23/09         9704-5182           Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Biennial         10/3/09         9205-3874           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         1/22/09         00023951           Espec         ESX-2CA         Environmental Chamber         3/12/08         Annual         3/12/09         017620           Gigatronics         80701A         (0.05-18GHz) Power Sensor         8/18/08         Annual         8/18/09         1833460           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1835299           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1835299           K & L         11SH10         Band Pass Filter         N/A         Annual         8/18/09         1835299           K & L         11SH10         Band Pass Filter         N/A         Annual         8/18/09         1835299           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         N/A			·				
Emco         3115         Horn Antenna (1-18GHz)         10/4/07         Biennial         10/3/09         9205-3874           Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         1/22/09         00023951           Espec         ESX-2CA         Environmental Chamber         3/12/08         Annual         3/12/09         017620           Gigatronics         80701A         (0.05-18GHz) Power Sensor         8/18/08         Annual         8/18/09         1833460           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1835299           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         8650319           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A           MiniCircuits         VHF-1300+         High Pass Filter         N/A         N/A         N/A           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A           Rohde & Schwarz         CMU200         Base Station Si			<b>'</b>				
Emco         3121C-DB4         Dipole Antenna         1/23/07         Biennial         1/22/09         00023951           Espec         ESX-2CA         Environmental Chamber         3/12/08         Annual         3/12/09         017620           Gigatronics         80701A         (0.05-18GHz) Power Sensor         8/18/08         Annual         8/18/09         1833460           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1835299           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         8650319           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         N/A           MiniCircuits         VHF-300+         High Pass Filter         N/A         N/A         N/A         N/A           Pasternack <t< td=""><td></td><td></td><td>·</td><td></td><td></td><td></td><td></td></t<>			·				
Espec         ESX-2CA         Environmental Chamber         3/12/08         Annual         3/12/09         017620           Gigatronics         80701A         (0.05-18GHz) Power Sensor         8/18/08         Annual         8/18/09         1833460           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         8650319           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         30716           MiniCircuits         VHF-1300+         High Pass Filter         N/A         N/A         N/A         30716           MiniCircuits         VHF-3100+         High Pass Filter         N/A         N/A         N/A         30721           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A         N/A           Rohde & Schwarz         CMU200<			` '				
Gigatronics         80701A         (0.05-18GHz) Power Sensor         8/18/08         Annual         8/18/09         1833460           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1835299           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         8650319           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         30716           MiniCircuits         VHF-1300+         High Pass Filter         N/A         N/A         30716           MiniCircuits         VHF-3100+         High Pass Filter         N/A         N/A         N/A           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A           Rohde & Schwarz         CMU200         Base Station Simulator         5/29/08         Annual         5/29/09         836371/0079           Rohde & Schwarz         NRVD         Dual Channel Power			'				
Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         1835299           Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         8650319           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         30716           MiniCircuits         VHF-1300+         High Pass Filter         N/A         N/A         N/A         30716           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A         30721           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A         30721           Rohde & Schwarz         CMU200         Base Station Simulator         5/29/08         Annual         5/29/09         836371/0079           Rohde & Schwarz         CMU200         Base Station Simulator         12/6/07         Annual         7/23/08         107826           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695	·						
Gigatronics         8651A         Universal Power Meter         8/18/08         Annual         8/18/09         8650319           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         30716           MiniCircuits         VHF-1300+         High Pass Filter         N/A         N/A         30721           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A           Rohde & Schwarz         CMU200         Base Station Simulator         5/29/08         Annual         5/29/09         836371/0079           Rohde & Schwarz         CMU200         Base Station Simulator         12/6/07         Annual         12/5/08         107826           Rohde & Schwarz         CMU200         Base Station Simulator         7/23/08         Annual         7/23/09         109892           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         7/2/09         835360/0079			,				
K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         1300/4000           K & L         11SH10         Band Pass Filter         N/A         Annual         N/A         30716           MiniCircuits         VHF-1300+         High Pass Filter         N/A         N/A         N/A         30721           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A           Rohde & Schwarz         CMU200         Base Station Simulator         5/29/08         Annual         5/29/09         836371/0079           Rohde & Schwarz         CMU200         Base Station Simulator         12/6/07         Annual         12/5/08         107826           Rohde & Schwarz         CMU200         Base Station Simulator         7/23/08         Annual         7/23/09         109892           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRVS         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         11/27/08         10							
K & L         11SH10         Band Pass Filter         N/A         Annual         N/A           MiniCircuits         VHF-1300+         High Pass Filter         N/A         N/A         30716           MiniCircuits         VHF-3100+         High Pass Filter         N/A         N/A         N/A         30721           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A           Rohde & Schwarz         CMU200         Base Station Simulator         5/29/08         Annual         5/29/09         836371/0079           Rohde & Schwarz         CMU200         Base Station Simulator         12/6/07         Annual         12/5/08         107826           Rohde & Schwarz         CMU200         Base Station Simulator         7/23/08         Annual         7/23/09         109892           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRVS         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           R							
MiniCircuits         VHF-1300+         High Pass Filter         N/A         N/A         30716           MiniCircuits         VHF-3100+         High Pass Filter         N/A         N/A         N/A         30721           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A           Rohde & Schwarz         CMU200         Base Station Simulator         5/29/08         Annual         5/29/09         836371/0079           Rohde & Schwarz         CMU200         Base Station Simulator         12/6/07         Annual         12/5/08         107826           Rohde & Schwarz         CMU200         Base Station Simulator         7/23/08         Annual         7/23/09         109892           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRVS         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         11/27/08         100155           Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
MiniCircuits         VHF-3100+         High Pass Filter         N/A         N/A         30721           Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A           Rohde & Schwarz         CMU200         Base Station Simulator         5/29/08         Annual         5/29/09         836371/0079           Rohde & Schwarz         CMU200         Base Station Simulator         12/6/07         Annual         12/5/08         107826           Rohde & Schwarz         CMU200         Base Station Simulator         7/23/08         Annual         7/23/09         109892           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRVS         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         11/27/08         100155           Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial							30716
Pasternack         PE2208-6         Bidirectional Coupler         N/A         N/A         N/A           Rohde & Schwarz         CMU200         Base Station Simulator         5/29/08         Annual         5/29/09         836371/0079           Rohde & Schwarz         CMU200         Base Station Simulator         12/6/07         Annual         12/5/08         107826           Rohde & Schwarz         CMU200         Base Station Simulator         7/23/08         Annual         7/23/09         109892           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRV-S         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         12/20/08         100155           Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial         11/27/09         846076/0007           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx <t< td=""><td>MiniCircuits</td><td></td><td></td><td></td><td></td><td>N/A</td><td></td></t<>	MiniCircuits					N/A	
Rohde & Schwarz         CMU200         Base Station Simulator         5/29/08         Annual         5/29/09         836371/0079           Rohde & Schwarz         CMU200         Base Station Simulator         12/6/07         Annual         12/5/08         107826           Rohde & Schwarz         CMU200         Base Station Simulator         7/23/08         Annual         7/23/09         109892           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRV-S         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         12/20/08         100155           Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial         11/27/08         46076/0007           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2404           Solar Electronics         8012-50-R-24-BNC<	Pasternack		Ü				
Rohde & Schwarz         CMU200         Base Station Simulator         12/6/07         Annual         12/5/08         107826           Rohde & Schwarz         CMU200         Base Station Simulator         7/23/08         Annual         7/23/09         109892           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRVS         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         12/20/08         100155           Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial         11/27/08         46076/0007           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Rx         6/19/07         Biennial         6/18/09         9105-2404           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2403           Solar Electronics         8012-50-R-24-					Annual		836371/0079
Rohde & Schwarz         CMU200         Base Station Simulator         7/23/08         Annual         7/23/09         109892           Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRVS         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         12/20/08         100155           Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial         17/2/09         846076/0007           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Rx         6/19/07         Biennial         6/18/09         9105-2404           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2403           Solar Electronics         8012-50-R-24-BNC         LISN         11/8/07         Biennial         11/8/09         0310233							
Rohde & Schwarz         NRVD         Dual Channel Power Meter         12/12/06         Biennial         12/11/08         101695           Rohde & Schwarz         NRVS         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         12/20/08         100155           Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial         7/2/09         846076/0007           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Rx         6/19/07         Biennial         6/18/09         9105-2404           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2403           Solar Electronics         8012-50-R-24-BNC         LISN         11/8/07         Biennial         11/8/09         0310233							
Rohde & Schwarz         NRVS         Single Channel Power Meter         7/3/07         Biennial         7/2/09         835360/0079           Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         12/20/08         100155           Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial         7/2/09         846076/0007           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Rx         6/19/07         Biennial         6/18/09         9105-2404           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2403           Solar Electronics         8012-50-R-24-BNC         LISN         11/8/07         Biennial         11/8/09         0310233				12/12/06			
Rohde & Schwarz         NRV-Z32         Peak Power Sensor (100uW-2W)         12/21/06         Biennial         12/20/08         100155           Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial         7/2/09         846076/0007           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Rx         6/19/07         Biennial         6/18/09         9105-2404           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2403           Solar Electronics         8012-50-R-24-BNC         LISN         11/8/07         Biennial         11/8/09         0310233	_						
Rohde & Schwarz         NRV-Z33         Peak Power Sensor (1mW-20W)         11/28/06         Biennial         11/27/08         100004           Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial         7/2/09         846076/0007           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Rx         6/19/07         Biennial         6/18/09         9105-2404           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2403           Solar Electronics         8012-50-R-24-BNC         LISN         11/8/07         Biennial         11/8/09         0310233			· ·				
Rohde & Schwarz         NRV-Z53         Power Sensor         7/3/07         Biennial         7/2/09         846076/0007           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Rx         6/19/07         Biennial         6/18/09         9105-2404           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2403           Solar Electronics         8012-50-R-24-BNC         LISN         11/8/07         Biennial         11/8/09         0310233			,				
Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Rx         6/19/07         Biennial         6/18/09         9105-2404           Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2403           Solar Electronics         8012-50-R-24-BNC         LISN         11/8/07         Biennial         11/8/09         0310233			\ /				
Schwarzbeck         UHA9105         Dipole Antenna (400 - 1GHz) Tx         6/19/07         Biennial         6/18/09         9105-2403           Solar Electronics         8012-50-R-24-BNC         LISN         11/8/07         Biennial         11/8/09         0310233	_						
Solar Electronics         8012-50-R-24-BNC         LISN         11/8/07         Biennial         11/8/09         0310233	_		` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `				
			` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `				
	_						

Table 4-1. Test Equipment

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 9 of 35
0810171523.BEJ	,	850/1900 GSM/GPRS Phone		DEV.0.70



## SAMPLE CALCULATIONS

### **Emission Designator**

Emission Designator = 250KGXW

GSM BW = 250 kHzG = Phase Modulation X = Cases not otherwise covered W = Combination (Audio/Data)

## **Spurious Radiated Emission - PCS Band**

Example: Channel 512 PCS Mode 2<sup>nd</sup> Harmonic (3700.40 MHz)

The receive analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the receive analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm - (-24.80) = 50.3 dBc.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	(LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 10 of 35

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## 6.0 TEST RESULTS

## 6.1 Summary

Company Name: <u>LG Electronics USA</u>

FCC ID: BEJLG410G

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

Mode(s): GSM

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference				
TRANSMITTER MODE	TRANSMITTER MODE (TX)								
2.1049, 22.917(a), 24.238(a)	Occupied Bandwidth	N/A		PASS	Section 7.0				
2.1051, 22.917(a), 24.238(a)	Band Edge / Conducted Spurious Emissions	< 43 + log <sub>10</sub> (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Section 7.0				
24.232(d)	Peak-Average Ratio	< 13 dB	CONDUCTED	PASS	Section 7.0				
2.1046	Transmitter Conducted Output Power	N/A		PASS	Section 6.2				
22.913(a)(2)	Effective Radiated Power	< 7 Watts max. ERP (<6.3 Watts max. ERP (IC))		PASS	Section 6.3				
24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP	RADIATED	PASS	Section 6.4				
2.1053, 22.917(a), 24.238(a)	Undesirable Emissions	< 43 + log <sub>10</sub> (P[Watts]) for all out-of- band emissions	TODINIED	PASS	Sections 6.5, 6.6				
2.1055, 22.355, 24.235	Frequency Stability	< 2.5 ppm		PASS	Sections 6.7, 6.8				
RECEIVER MODE (RX)	/ DIGITAL EMISSIONS								
15.107	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.107 limits	LINE CONDUCTED	PASS	Pt. 15B Test Report				
15.109	General Field Strength Limits (Restricted Bands and Radiated Emissions Limits)	< FCC 15.109 limits	RADIATED (30MHz-1GHz) (1-25 GHz)	PASS	Pt. 15B Test Report				
RF EXPOSURE									
2.1091 / 2.1093	SAR Test	1.6 W/kg (SAR Limit)	SAR	PASS	SAR Report				

Table 6-1. Summary of Test Results

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 11 of 35

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#### **Conducted Output Power** 6.2 §2.1046

A base station simulator (Rhode and Schwartz Model: CMU200) was used to establish communication with the LG 850/1900 GSM/GPRS Phone FCC ID: BEJLG410G. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested in all configurations and the highest power is reported in GSM voice mode while using a Power Control Level of "5" in the Cellular band and "0" in the PCS band. The powers are reported below.

		GS	SM	GP	RS
Band	Channel	Power Control Level	Conducted Power	Uplink / Downlink Slots Used	Conducted Power
			[dBm]		[dBm]
	128	5	32.12	1/1	32.12
Cellular	190	5	32.25	1/1	32.24
	251	5	31.98	1/1	31.99
	512	0	29.94	1/1	29.94
PCS	661	0	29.82	1/1	29.81
	810	0	29.47	1/1	29.48

**Table 6-2. GSM Conducted Output Powers** 

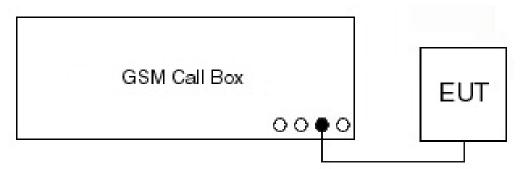


Figure 6-1. GSM Conducted Power Test Setup Diagram

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 12 of 35



# 6.3 Effective Radiated Power Output Data §22.913(a)(2)

POWER: PCL "5" (Cellular GSM Mode)

Frequency [MHz]	Mode	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Battery Type
824.20	GSM850	-13.380	25.18	0.00	Н	25.18	0.330	Standard
836.60	GSM850	-11.270	27.29	0.00	Н	27.29	0.536	Standard
848.80	GSM850	-9.330	29.23	0.00	Н	29.23	0.838	Standard

Table 6-3. Effective Radiated Power Output Data

### **NOTES:**

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 13 of 35



# 6.4 Equivalent Isotropic Radiated Power Output Data §24.232(c)

POWER: PCL "0" (PCS GSM Mode)

Frequency [MHz]	Mode	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
1850.20	GSM1900	-11.040	22.52	8.00	Н	30.52	1.127	Standard
1880.00	GSM1900	-10.250	23.31	8.00	Н	31.31	1.352	Standard
1909.80	GSM1900	-8.560	25.00	8.00	Н	33.00	1.995	Standard

Table 6-4. Equivalent Isotropic Radiated Power Output Data

### **NOTES:**

<u>Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA -603-C-2004, Aug. 17, 2004:</u>

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 14 of 35



# **6.5 Cellular GSM Radiated Measurements** §2.1053, 22.917(a); RSS-132 (4.5.1)

## Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 824.20 MHz

CHANNEL: 128

MEASURED OUTPUT POWER: 29.230 dBm = 0.838 W

MODULATION SIGNAL: GSM (Internal)

DISTANCE: 3 meters

LIMIT: 43 + 10 log10 (W) = 42.23 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1648.40	-31.98	6.08	-25.90	Н	55.1
2472.60	-33.98	6.53	-27.45	Н	56.7
3296.80	-51.98	6.87	-45.11	Н	74.3
4121.00	-96.27	7.21	-89.06	Н	118.3
4945.20	-95.92	8.37	-87.55	Н	116.8

Table 6-5. Radiated Spurious Data (Cellular GSM Mode – Ch. 128)

### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 15 of 35



# Cellular GSM Radiated Measurements (Cont'd) §2.1053, 22.917(a); RSS-132 (4.5.1)

## Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 836.60 MHz

CHANNEL: 190

MEASURED OUTPUT POWER: 29.230 dBm = 0.838 W

MODULATION SIGNAL: GSM (Internal)

DISTANCE: 3 meters

LIMIT: 43 + 10 log10 (W) = 42.23 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1673.20	-31.47	6.09	-25.38	Н	54.6
2509.80	-32.02	6.55	-25.47	I	54.7
3346.40	-51.67	6.89	-44.78	Н	74.0
4183.00	-55.28	7.43	-47.85	Н	77.1
5019.60	-95.63	8.35	-87.28	Н	116.5

Table 6-6. Radiated Spurious Data (Cellular GSM Mode – Ch. 190)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and tumtable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 16 of 35



# Cellular GSM Radiated Measurements (Cont'd) §2.1053, 22.917(a); RSS-132 (4.5.1)

## Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 848.80 MHz

CHANNEL: 251

MEASURED OUTPUT POWER: 29.230 dBm = 0.838 W

MODULATION SIGNAL: CDMA (Internal)

DISTANCE: 3 meters

LIMIT: 43 + 10 log10 (W) = 42.23 dBd

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1697.60	-29.66	6.09	-23.57	Н	52.8
2546.40	-34.10	6.57	-27.53	Н	56.8
3395.20	-52.66	6.91	-45.75	Н	75.0
4244.00	-56.30	7.65	-48.64	Н	77.9
5092.80	-95.33	8.33	-87.00	Н	116.2

Table 6-7. Radiated Spurious Data (Cellular GSM Mode – Ch. 251)

### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 17 of 35



## 6.6 PCS GSM Radiated Measurements

§2.1053, 24.238(a); RSS-133 (6.5.1)

## Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1850.20 MHz

CHANNEL: 512

MEASURED OUTPUT POWER: 33.010 dBm = 2.000 W

MODULATION SIGNAL: GSM (Internal)

DISTANCE: 3 meters

LIMIT:  $43 + 10 \log 10 \text{ (W)} = \underline{46.01} \text{ dBc}$ 

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3700.40	-39.46	9.02	-30.44	Н	63.5
5550.60	-42.81	10.40	-32.41	Н	65.4
7400.80	-92.00	10.50	-81.50	Н	114.5
9251.00	-43.34	11.85	-31.49	Н	64.5
11101.20	-89.92	12.76	-77.16	Н	110.2

Table 6-8. Radiated Spurious Data (PCS GSM Mode – Ch. 512)

### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 18 of 35



## PCS GSM Radiated Measurements (Cont'd)

§2.1053, 24.238(a); RSS-133 (6.5.1)

## Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz

CHANNEL: \_\_\_\_\_\_\_661

MEASURED OUTPUT POWER: 33.010 dBm = 2.000 W

MODULATION SIGNAL: GSM (Internal)

DISTANCE: 3 meters

LIMIT:  $43 + 10 \log 10 \text{ (W)} = \underline{46.01} \text{ dBc}$ 

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-38.23	8.99	-29.24	Н	62.2
5640.00	-47.42	10.40	-37.02	Н	70.0
7520.00	-92.03	10.62	-81.41	Н	114.4
9400.00	-41.49	11.70	-29.79	Н	62.8
11280.00	-89.26	12.69	-76.58	Н	109.6

Table 6-9. Radiated Spurious Data (PCS GSM Mode - Ch. 661)

### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 19 of 35



## PCS GSM Radiated Measurements (Cont'd)

§2.1053, 24.238(a); RSS-133 (6.5.1)

## Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1909.80 MHz

CHANNEL: 810

MEASURED OUTPUT POWER: 33.010 dBm = 2.000 W

MODULATION SIGNAL: GSM (Internal)

DISTANCE: 3 meters

LIMIT:  $43 + 10 \log 10 (W) = 46.01$  dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3819.60	-31.40	8.97	-22.43	Н	55.4
5729.40	-48.94	10.40	-38.54	Н	71.6
7639.20	-91.96	10.71	-81.25	Н	114.3
9549.00	-45.47	11.64	-33.83	Н	66.8
11458.80	-88.61	12.62	-76.00	Н	109.0

Table 6-10. Radiated Spurious Data (PCS GSM Mode – Ch. 810)

### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
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# 6.7 Cellular GSM Frequency Stability Measurements §2.1055, 22.355; RSS-132 (4.3)

OPERATING FREQUENCY: 836,600,000 Hz

CHANNEL: 190

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIMIT:  $\pm 0.00025$  % or 2.5 ppm

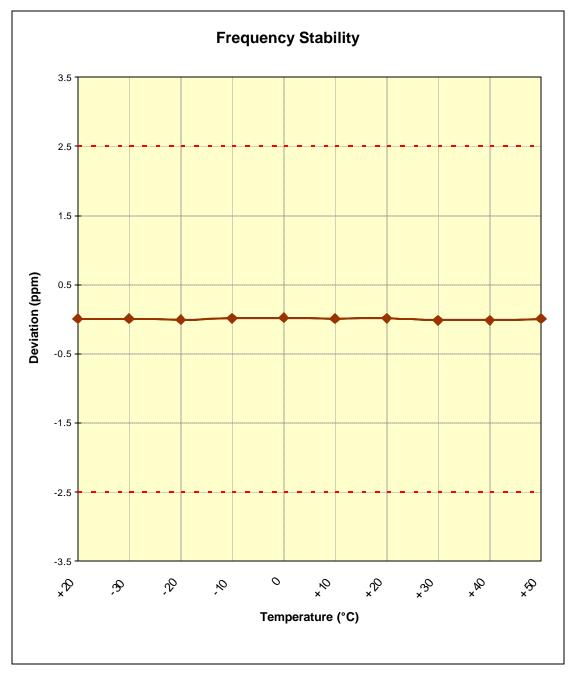
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	836,600,010	10	0.000001
100 %		- 30	836,600,005	5	0.000001
100 %		- 20	836,599,992	-8	-0.000001
100 %		- 10	836,600,016	16	0.000002
100 %		0	836,600,021	21	0.000003
100 %		+ 10	836,600,010	10	0.000001
100 %		+ 20	836,600,014	14	0.000002
100 %		+ 30	836,599,984	-16	-0.000002
100 %		+ 40	836,599,985	-15	-0.000002
100 %		+ 50	836,600,010	10	0.000001
115 %	4.26	+ 20	836,600,013	13	0.000002
BATT. ENDPOINT	3.40	+ 20	836,599,990	-10	-0.000001

Table 6-11. Frequency Stability Data (Cellular GSM Mode – Ch. 190)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 21 of 35



# Cellular GSM Frequency Stability Measurements (Cont'd) §2.1055, 22.355; RSS-132 (4.3)



Plot 6-1. Frequency Stability Graph (Cellular GSM Mode - Ch. 190)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 22 of 35
0810171523.BEJ	October 21-22, 2008	850/1900 GSM/GPRS Phone		



# 6.8 PCS GSM Frequency Stability Measurements §2.1055, 24.235; RSS-133 (6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIMIT:  $\pm 0.00025$  % or 2.5 ppm

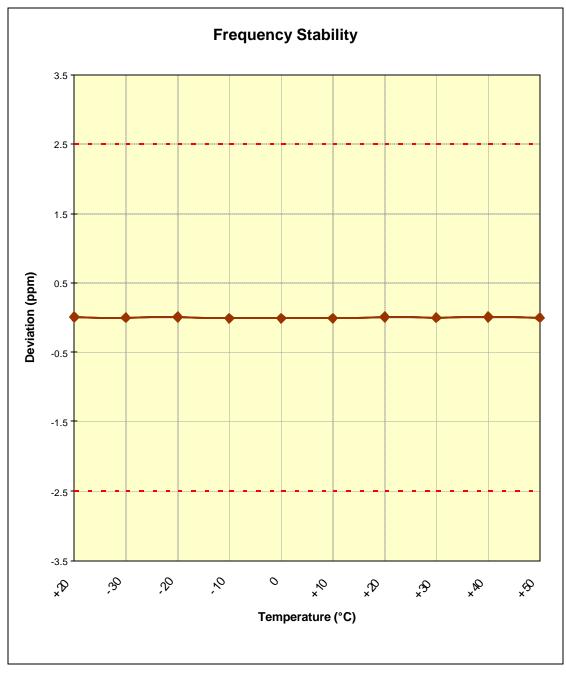
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,880,000,010	10	0.000001
100 %		- 30	1,880,000,004	4	0.000000
100 %		- 20	1,880,000,014	14	0.000001
100 %		- 10	1,879,999,984	-16	-0.000001
100 %		0	1,879,999,985	-15	-0.000001
100 %		+ 10	1,879,999,990	-10	-0.000001
100 %		+ 20	1,880,000,008	8	0.000000
100 %		+ 30	1,880,000,004	4	0.000000
100 %		+ 40	1,880,000,011	11	0.000001
100 %		+ 50	1,879,999,993	-7	0.000000
115 %	4.26	+ 20	1,880,000,012	12	0.000001
BATT. ENDPOINT	3.40	+ 20	1,879,999,990	-10	-0.000001

Table 6-12. Frequency Stability Data (PCS GSM Mode - Ch. 661)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	(LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 23 of 35



# PCS GSM Frequency Stability Measurements (Cont'd) §2.1055, 24.235; RSS-133 (6.3)

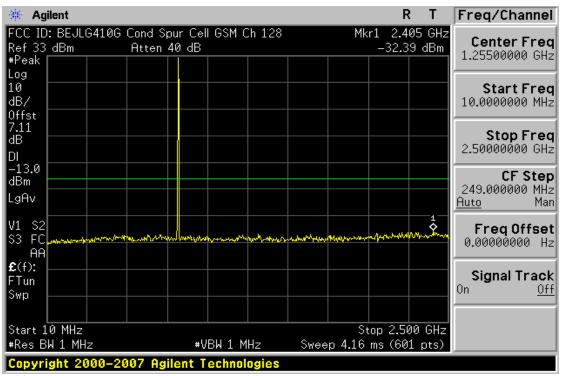


Plot 6-2. Frequency Stability Graph (PCS GSM Mode - Ch. 661)

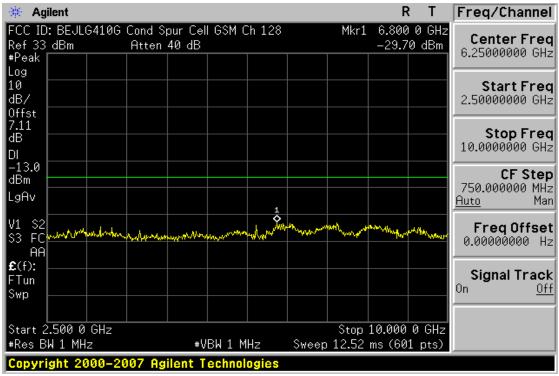
FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 24 of 35



### PLOTS OF EMISSIONS



Plot 7-1. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)



Plot 7-2. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)

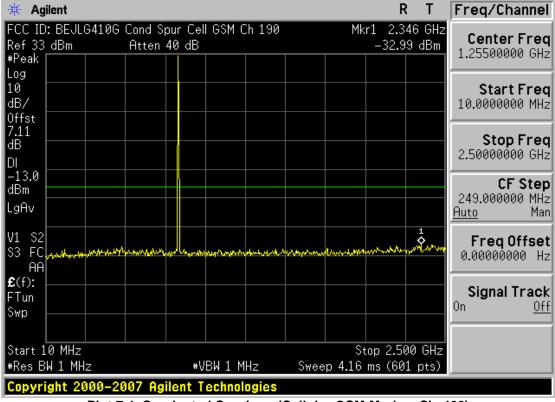
FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
Test Report S/N: 0810171523.BEJ		EUT Type: 850/1900 GSM/GPRS Phone		Page 25 of 35

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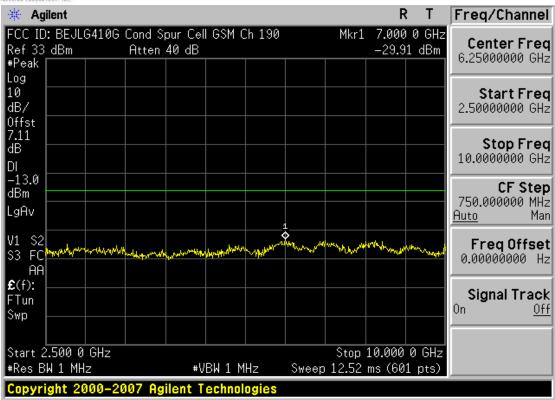
Plot 7-3. Band Edge Plot (Cellular GSM Mode - Ch. 128)



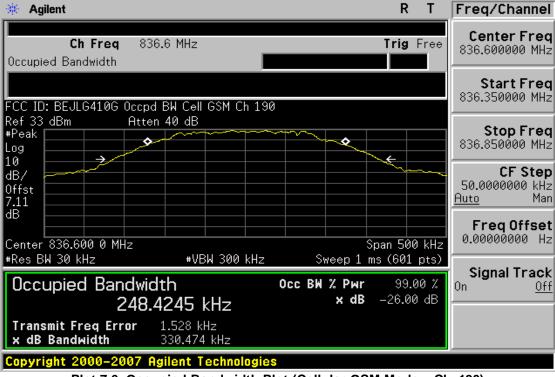
Plot 7-4. Conducted Spurious (Cellular GSM Mode - Ch. 190)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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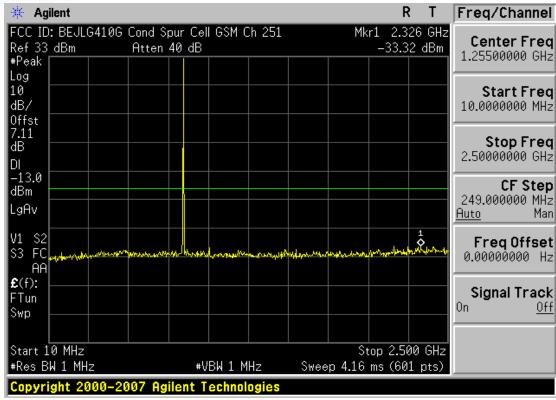
Plot 7-5. Conducted Spurious Plot (Cellular GSM Mode - Ch. 190)



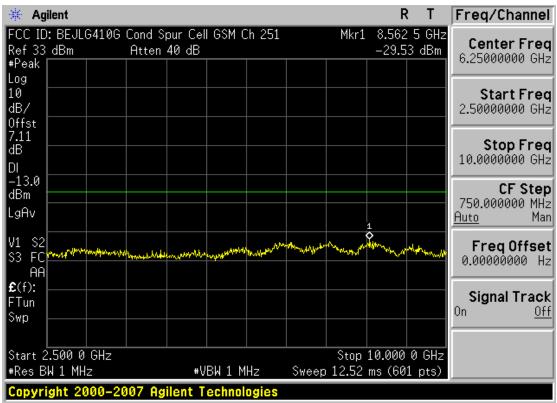
Plot 7-6. Occupied Bandwidth Plot (Cellular GSM Mode - Ch. 190)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
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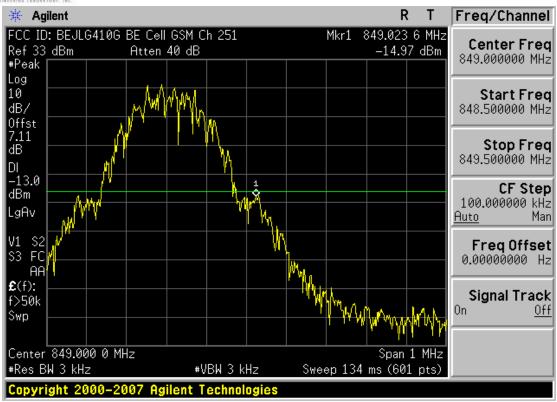
Plot 7-7. Conducted Spurious Plot (Cellular GSM Mode – Ch. 251)



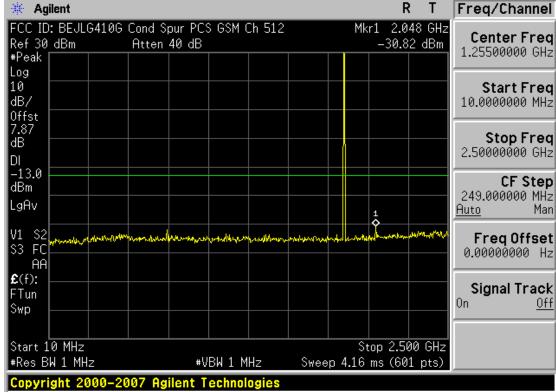
Plot 7-8, Conducted Spurious Plot (Cellular GSM Mode - Ch. 251)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 28 of 35





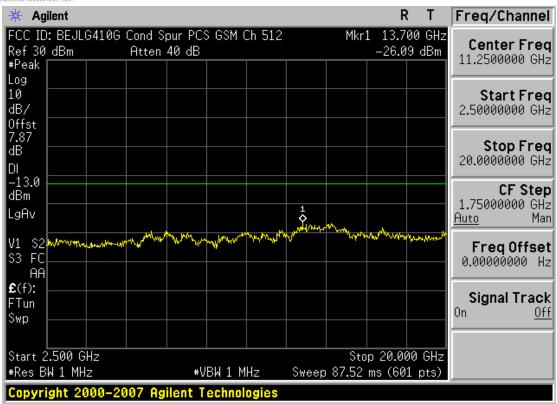




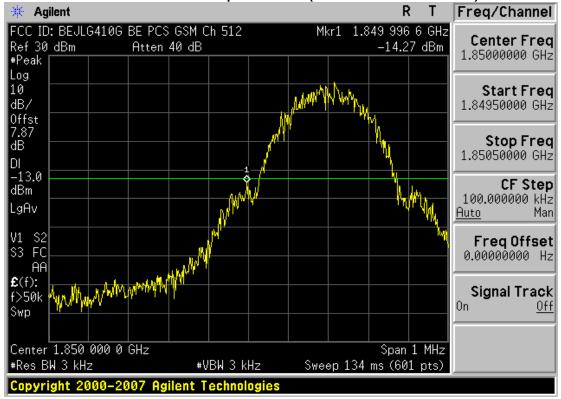
Plot 7-10. Conducted Spurious Plot (PCS GSM Mode - Ch. 512)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
Test Report S/N: 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 29 of 35





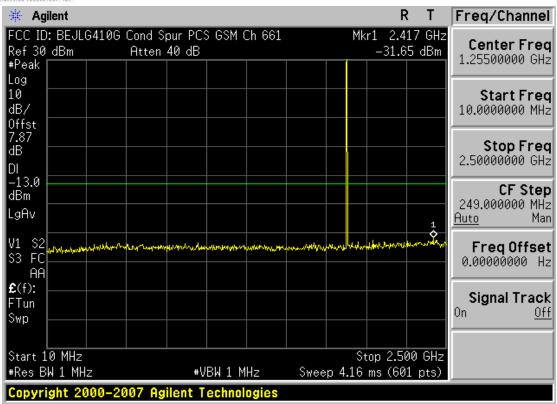
Plot 7-11. Conducted Spurious Plot (PCS GSM Mode - Ch. 512)



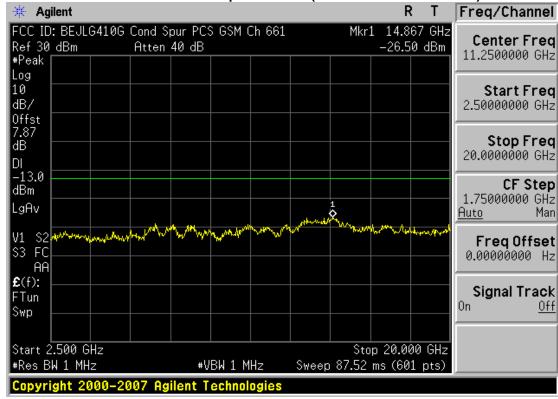
Plot 7-12. Band Edge Plot (PCS GSM Mode - Ch. 512)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
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Plot 7-13. Conducted Spurious Plot (PCS GSM Mode - Ch. 661)

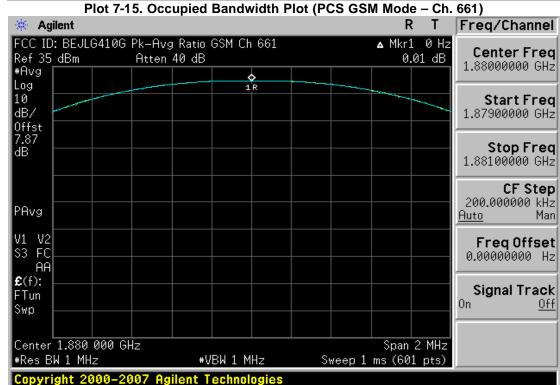


Plot 7-14. Conducted Spurious Plot (PCS GSM Mode - Ch. 661)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 31 of 35



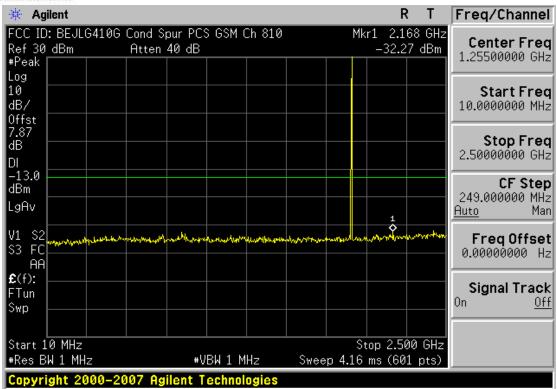




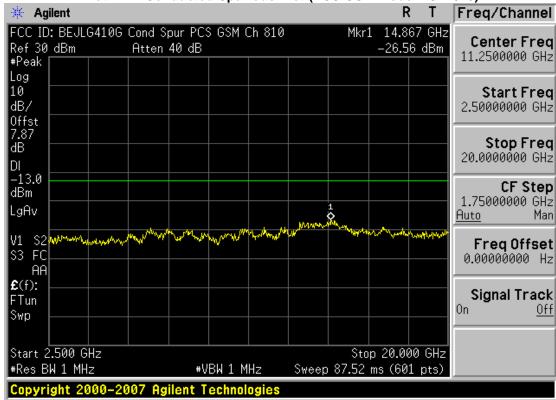
Plot 7-16. Peak-Average Ratio Plot (PCS GSM Mode - Ch. 661)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
Test Report S/N: 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 32 of 35
0010171323.BE3	,	030/1900 G3W/GFK3 FIIONE		DEV 0.70





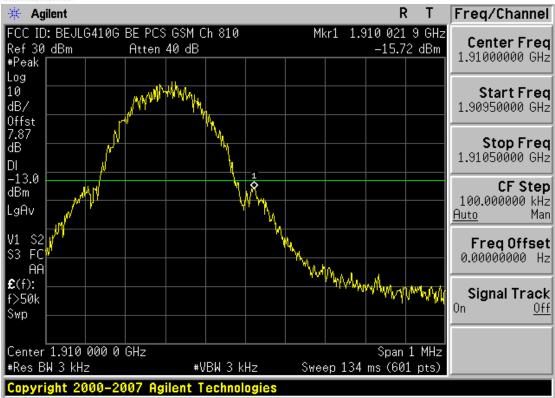




Plot 7-18. Conducted Spurious Plot (PCS GSM Mode - Ch. 810)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	LG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 33 of 35
0810171523.BEJ	,	850/1900 GSM/GPRS Phone		DEV/0.70





Plot 7-19. Band Edge Plot (PCS GSM Mode - Ch. 810)

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	① LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 34 of 35



## 8.0 CONCLUSION

The data collected show that the **LG 850/1900 GSM/GPRS Phone FCC ID: BEJLG410G** complies with all the requirements of Parts 2, 22, and 24 of the FCC rules.

FCC ID: BEJLG410G	PCTEST*	FCC Pt. 22/24 GSM MEASUREMENT REPORT (CERTIFICATION)	(LG	Reviewed by: Quality Manager
<b>Test Report S/N:</b> 0810171523.BEJ	Test Dates: October 21-22, 2008	EUT Type: 850/1900 GSM/GPRS Phone		Page 35 of 35